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ABSTRACT

Generally, today's curriculum trends in the health professions are to allow for increased enrollment of students, to permit greater curriculum flexibility, to arrange earlier introduction of students to patients, to shorten program time, to attract minority students, to encourage more community learning experiences, to permit more independent learning, to encourage interdisciplinary efforts, to improve career mobility, and to utilize techniques to more specifically identify behavioral objectives for evaluation. This document briefly describes such programs. Information is given about persons responsible for the programs so that further data might be obtained by interested parties. (Author/HS)

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INNOVATIONS IN CURRICULA IN THE HEALTH PROFESSIONS AND THEIR EVALUATION

SPECIAL INTEREST GROUP IN HEALTH PROFESSIONS EDUCATION

AMERICAN EDUCATIONAL RESEARCH ASSOCIATION

Chicago, Ill., April 5, 1972

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INTRODUCTION

Trying to describe in a few minutes the curriculum innovations and their evaluation in the health professions reminds me of Stephen Leacock's famous words of the gentleman who "flung himself upon his horse and rode madly off in all directions." To bring some order to this overwhelming topic, I shall mention some general curriculum trends and then elaborate on certain projects. This paper does not claim to include all nor even the best that is occurring in curriculum in the health professions. There were many limitations imposed in trying to assemble information, both general and specific, for an overview. It soon became apparent that this could be a major research project. My opinions were further reinforced when I learned that a researcher with the assistance of a grant is attempting to accomplish in a more comprehensive manner in medicine what I was investigating.[1] However, this brief report using many sources[2] may serve to acquaint interested readers with selected projects and names of people to contact for further information.

Generally, today's curriculum trends are to allow for increased enrollment of students, to permit greater curriculum flexibility, to arrange earlier introduction of students to patients, to shorten program time, to attract minority students, to encourage more community learning experiences, to permit more independent learning, to encourage interdisciplinary efforts, to improve career mobility, and to utilize techniques to more specifically identify behavioral objectives for evaluation. How innovative these programs are often depends on how much experience and contact the designer has had with other programs. Evaluation is often situational and local. Therefore, new methodologies and instruments are constantly being developed which may not be functional for other situations. However, it is obvious that health professions have now learned that evaluation is a critical part of the educational process even though they may not always know how to achieve it.

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1. Mrs. June Taylor, New Careers Development Center, 184 Fifth Avenue, New York City, New York.

2. Personal interviews, project descriptions, "Medical Schools-1971" Medical World News, September 24, 1971.

CURRICULUM TRENDS IN THE HEALTH PROFESSIONS

GREATER CURRICULUM FLEXIBILITY

+ Stanford University has no required courses as such (Medical Curriculum). Individualized programs ranging from 3 1/2 years to 5 or 6 years are arranged with faculty advisory teams.

+ University of Washington - Early Specialization Program - students may select and elect from 3 main tracks in clinical experience for early specialization.

EARLY INTRODUCTION OF STUDENTS TO PATIENTS

+ Medical College of Georgia - entirely clinical case method.
Case-oriented Basic Science Curriculum

Medical College of Georgia School of Medicine initiated in 1970 an experimental curriculum in medical education designed to give the students varied experiences in different learning environments using a disease and patient oriented approach. Volunteers for the 18 month (or first two years) special curriculum are given 110 patient problems in a planned sequence to progress from the clinical problem to the basic sciences concepts necessary for understanding or solving the clinical problem. Patient contacts begin the second week and unstructured self-study sessions allow for differing rates of learning.

Internal certifying examinations for problem solving and external evaluation comparing students in the experimental program with two control groups of students in the conventional curriculum are used. Cost assessment is also being conducted.

Project Coordinator: William H. Cheu, Jr., M.D.
Physician Augmentation Program
Medical College of Georgia
Augusta, Georgia

+ University of Missouri, Kansas City - six year high school to M.D. program has 16 year old students at the bedside.

SHORTENED TIME

+ Jefferson Medical College with Penn State has a medical curriculum of 5 years.
+ University of Michigan and South Carolina - 5 years
+ Boston University - same consideration

About 40 schools now offer special programs leading to M.D. and Ph.D. degrees.
+ The Ohio State University recent approval of M.D.-Ph.D. in Pharmacology

+ Case Western Reserve - "tiered" program in anesthesiology; 2 years - assistant anesthesiologist; 2 more years - B.S., Certificate and associate anesthesiologist. If student goes on to medical school, his later postgraduate training will be shortened.

+ The new baccalaureate degree program, Medical Communications, at The Ohio State University applies communication theories and techniques to the medical environment in order to achieve maximum efficiency in communication. It is unique because it is an undergraduate program with a social and behavioral emphasis.

SHORTENED TIME cont'd.

+ University of Miami School of Medicine
An Accelerated M.D. Program for Ph.D.'s

In 1971, University of Miami School of Medicine accepted 20 exceptionally qualified individuals with a Ph.D. degree in a biological, physical, or engineering science (with social science or psychology as possible alternatives) to enter their medical program with advanced standing. These special students have fulfilled most of the requirements of the first two years of medical school education. Periodically, National Boards are given to validate waivers of course requirements or to measure accomplishments for deficiencies which did not merit waivers. Following satisfactory attainment of the second year core curriculum, the student enters the core clinical training (3rd year). Upon successful completion he then may enter the regular elective program or receive his M.D. degree and proceed to an internship, or may make up additional deficiencies required by certain states.

Program Director: William J. Whelan, D.Sc.
Professor and Chairman, Dept. of Biochemistry
University of Miami School of Medicine
P. O. Box 875, Biscayne Annex
Miami, Florida 33152

MINORITY PROGRAMS

More women, more blacks, Puerto Ricans, and others being actively sought for health professions.

+ Harvard - Health Careers Summer Program with expenses and stipend to help recruit for health areas.

+ Cornell University Medical College had a behind-the-scenes look at medicine for 20 black and Puerto Rican students who had completed the junior year of college.

+ Hahnemann Medical College and Hospital in Philadelphia has designed "flexible curricula" for disadvantaged.

+ University of Southern California has a summer tutorial program for those weak in science and are admitting more students whose backgrounds are in humanities.

+ Northwestern University Medical School in Chicago is selecting black students for an intensive 2 years and 3 summers pre-medicine training called the Urban Doctors Program. This is to encourage the 25 students who finally enter the medical program to practice in communities of the urban poor.

COMMUNITY INVOLVEMENT

+ Mt. Sinai, New York City - students work in slums in East Harlem.

+ New York University - course in urban medicine

+ Johns Hopkins University, School of Medicine, Baltimore - experimenting with comprehensive care plans in a middle-class suburb and in Baltimore slums.

COMMUNITY INVOLVEMENT cont'd.

+ Creighton University, School of Medicine, Omaha, Nebraska - offered interns a non-credit course in flying to encourage rural practice.

+ University of Florida - provides ambulatory care to Lafayette County (low income group).

+ University of Washington, Seattle - responsible for Washington, Alaska, Montana and Idaho - has a new program "WAMI" designed to train doctors to practice in remote areas. Six students will start in Anchorage, come to Washington for further study then end with clinical training in Alaskan community hospitals. Shortage of training hospitals forces experimentation in family practice with good multispecialty clinics.

+ Michigan State - first to graduate M.D.'s trained entirely in community hospitals.

+ University of Illinois - has established semi-autonomous clinical centers in community hospitals in Chicago, Rockford, Peoria, and Urbana.

+ Indiana University permits students to begin their medical education on six campuses of five universities in the state.

INCREASED USE OF SELF-TEACHING METHODS

+ The Ohio State University - Pilot Medical School. With a three year grant from the Public Health Service and with previous experience in curriculum innovation and computer use, a faculty was recruited to originate a curriculum of modules and submodules. The regular Ohio State Medical curriculum is a four-phase, 3 year (35 mo.) curriculum; the Pilot Medical School is comparable to the first three phases (15mos.) of that curriculum. The curriculum is divided into five parts: Introduction to Medicine; Normal Man (7 body systems); Introduction to Pathophysiology and Therapeutics; Pathophysiology Modules and Physical Diagnosis.

The computer's primary use is in a Tutorial Evaluation System (TES) which permits the student to gauge his progress and success in satisfying objectives of the unit.

Thirty-two students were admitted to the first Pilot Medical School program with 58 admitted the second year. Each student has his own faculty advisor and faculty members are assigned as tutors for each module. If the student is not doing well, the computer may suggest study assignments, review of certain material, or a faculty conference.

Evaluation efforts are grouped into four categories: a) the student's evaluation of his own competency, b) the faculty evaluation of the student, c) the student's evaluation of the curriculum, and d) the overall evaluation of the program.

A detailed cost analysis and packaged curriculum materials will be available for other interested medical schools.

Project Assoc. Director: Dr. James Griesen
Pilot Medical School
Div. of Research & Evaluation in Medical Educ.
The Ohio State University
333 West 10th Avenue
Columbus, Ohio 43210

INCREASED USE OF SELF-TEACHING METHODS cont'd.

+ Arizona State University, Tempe, Arizona has a Continuous Progress Curriculum defined as a sequential learning process for students to progress at their own rate and assume responsibility for their own learning. "Formative evaluations", assisting students to diagnose their learning style and needs, and "summative evaluations", agreement between faculty member and student as to when the latter should attempt mastery, are part of the feedback system.

For further information contact: Dorothy Corona
Associate Professor of Nursing
Arizona State University
Tempe, Arizona

+ The Ohio State University, School of Nursing has a new curriculum funded by a grant from HEW, PHS, Division of Nursing, which enrolled approximately 325 students this year. The curriculum is based on a theoretical framework using five concepts: perception, interpersonal relationships, health, social systems and nursing process. Nursing process is the practice of nursing which ties together all these concepts. This new curriculum implements many current trends in education such as conceptual learning, mastery learning, self-pacing, independent study, team teaching, and a systems approach. Nursing subjects are divided into modules for which objectives are set. When students meet the objectives, they move to the next module. Each teacher is responsible for guiding 20 students toward mastery of learning. The curriculum, shorter by three quarters, permits more flexibility and hours for electives.

Further information can be obtained from:
Mrs. Bonnie Stultz, Instructor
School of Nursing
The Ohio State University
1585 Neil Avenue
Columbus, Ohio 43210

Audiovisual devices, including films, slides, tapes, and programmed learning are common.
Simulation programs have expanded and new ones developed (e.g. University of Illinois, U.C.L.A., University of Georgia, Northwestern Medical School).
Trends in innovative Nursing curricula seem to emphasize the person-centered approach, mastery of a task, and independent learning.

INTERDISCIPLINARY TEACHING

+ University of Chicago - British anatomists have stimulated much interest by including many areas such as anthropology and human development.

+ University of Rochester - Dr. George Engle is utilizing behavioral science input in clinical teaching. Students read Piaget, do work-ups from what the patient says, and learn more about the patient and his milieu.

"Humanistic Approach to Medicine" becoming a part of curriculum of several medical schools.

+ Harvard and Massachusetts Institute of Technology have joint program in Health Science and Technology.

INTERDISCIPLINARY TEACHING cont'd.

+ Stanford University - surgeons, rather than basic scientists, are teaching anatomy.

Core Curriculum

The growth of health occupations education and study of the required knowledges and skills have revealed many commonalities. For more effective and efficient utilization of resources, health related groups are attempting to establish curricula based on common competencies.

+ Presently, the Association of Schools of Allied Health Professions and the National Institutes of Health are conducting a study to define the core concept in allied health; to visit those institutions which have initiated the core approach to the education of allied health personnel at the baccalaureate, community college, and vocational technical levels; and to make recommendations regarding implementation of this concept. This descriptive study is scheduled for completion June 30, 1972.

Research Director: Miss Carolyn Burnett
School of Allied Medical Professions
The Ohio State University
1583 Perry Street, Room 306
Columbus, Ohio 43210

CAREER MOBILITY

+ University of Chicago Hospitals and Clinics - as a result of a wildcat strike in the spring of 1969 where one of the key issues was training, the University of Chicago Hospitals and Clinics began an upward mobility program. A Department of Education and Training was established, and by 1971, basic reading, mathematics, English, and GED preparation were started for nursing, laboratory science, and clerical careers. All education relates directly and specifically to mobility with curricula development involving many participants. Testing for diagnosis of what is needed to get ahead in a career is a basic principle of the program. Programs which must be taught outside the hospital are linked to educational institutions which are accredited (e.g. jr. colleges or nursing schools with A.A. degree).

Program Director: Sally Holloway
Department of Education and Training
University of Chicago Hospitals and Clinics
950 East 59th Street
Chicago, Illinois 60637

+ Johns Hopkins Hospital has a similar program which allows an employee with potential and training to move from initial kinds of duties to completion of an academic degree from a community college and performance as a technician. Job requirements, performance standards, and didactic and clinical portions of a curriculum are identified.

+ Career ladders program for governmental hospitals in three cities - Boston, Cleveland and Milwaukee - have been supported by federal funds. More entry education is being placed in secondary school and higher education settings with much participation from vocational schools.

CAREER MOBILITY cont'd.

+ Dr. Eleanor Gilpatrick of the Research Foundation of the City University of New York developed a manual for task identification and is working in job upgrading.

+ Attempts to successfully coordinate educational programs have taken longer than expected because of institutional and attitudinal barriers. Proficiency and equivalency examinations are slowly being developed to assist in this process. MEDIHC (Military Experience Directed Into Health Careers) and MEDEX (Medicine-physician extension) programs are having an impact on curriculum.

+ Both federal and private agencies are forcing better articulation of health professions curricula at different levels. An example of progress in this area is the School of Allied Health Sciences, University of Texas Medical Branch at Galveston, Texas, Mr. G. E. Livanec, Program Coordinator.

TASK ANALYSIS

+ The Ohio State University, Occupational Therapy Manpower Study, funded by HEW, PHS, Allied Health Manpower, is in its final phase of a two-year project to analyze the functions performed in occupational therapy and, from this analysis to develop curriculum guides that define the educational needs of future occupational therapy practitioners. With the assistance of the Ohio Bureau of Employment Service and the United States Department of Labor, teams of a professional occupational analyst and an occupational therapist observed and recorded duties and tasks performed by staff members of fifteen selected facilities throughout the United States. Task analysis procedures applicable to the health professions were developed by project staff. Job descriptions and applicant qualifications needed for entry into each level resulted from the first year of investigation. In the second year, curriculum guides were developed. Using the job descriptions as data, performance objectives indicating specified behavior and conditions under which behavior should be performed were prepared for all levels of training. Curriculum modules listing objectives, suggested teaching strategies, teaching methods, resources, media, and evaluation are included in the guides.

Project Director: Kathryn Schoen, Ph.D.
School of Allied Medical Professions
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Columbus, Ohio 43210

+ The Bowman Gray School of Medicine with a systems approach to functional job analysis did an analysis of the physician's assistant, developed a curriculum, and is currently evaluating the 24 month, 3 phase program.

Program Director: Lee Powers
Physician's Assistant Training
The Bowman Gray School of Medicine
Wake Forest University
Winston-Salem, North Carolina 27103

OTHER TRENDS

+ Changes in curriculum development are noted at both graduate and undergraduate levels in faculty preparation programs. In expanding two year technical programs to four year baccalaureate degree programs, the major component is usually teacher or administrator preparation. For those health professionals who received their basic professional education and a bachelor's degree but no preparation for teaching, several programs have been recently established or are about to be initiated. The oldest of these is the Master's Program at the School of Allied Medical Professions at The Ohio State University (1969) with the Master of Science offered through the School. The State University of New York at Buffalo and the University of Kentucky at Lexington offer degrees in conjunction with the College of Education. Federal funding and the Kellogg Foundation are establishing additional programs some of which are located at the University of Florida and University of Illinois Medical Center, Chicago.

+ Curriculum changes are occurring as the fifth year dietetic internship is being deleted and a four year baccalaureate degree integrated didactic and clinical experience medical dietetics program is being established.

+ The Circulation Technology program, a four year baccalaureate degree curriculum is directed toward the application of scientific technology in diagnosis, monitoring, and support of the seriously ill patient. It is clinically affiliated with heart/lung bypass in support of the patient undergoing open heart surgery, circulatory support for the failing heart or lungs, blood purification by an artificial kidney, delivery of cancer fighting drugs to the circulatory system, and the medical diagnostic, and physiological measurements necessary to the understanding of the patient's disease state and present condition. The only program of this kind is in operation at The Ohio State University.

+ The Ohio State University College of Pharmacy has established with the assistance of federal funds an Office of Educational Development. This unit, now in its second year, has a staff of ten people to assist the thirty faculty members to improve curriculum content, instructional methods, and evaluation. The establishment of this office to approach in a systematic way the educational development of a professional college has influenced other professional schools to seek similar units. Progress has been made in many areas, with more screening and diagnostic examinations for individual classes being one benefit.

For further information contact:

Dr. DeLayne R. Hudspeth
Director, Educational Development
College of Pharmacy
The Ohio State University
500 W. 12th Avenue
Columbus, Ohio 43210

+ University of California, San Francisco, among other schools has a medical scientist program designed to train researchers.

+ Family practice programs are being emphasized in many schools of medicine.

OTHER TRENDS cont'd.

+ Training in Expanded Auxiliary Management Program (TEAM)

Eleven federally funded dental schools are participating in a program to teach selected dental students to head a team of assistants who have additional duties. Under the new plan, a team of five auxiliaries, a dental therapist, two expanded duty dental assistants (EDDA's), and two chairside assistants will assist the dentist by performing a portion of his routine tasks. Four patients can be treated simultaneously by team members. This should triple a dentist's productive effort.

The primary emphasis of the program now is to develop curriculum and teaching methods for aides so increased numbers of students can participate in the program. Restructuring of duties for these assistants will result in dental students being able to perform more skilled tasks which are often required of specialists. Ohio State's program is unique for the dental student because it has 30 hours of computer instruction. The dental student learns to supervise auxiliaries and to control the quality of auxiliaries' work.

Modifications in laws will have to precede team practice in many states. Dental students and patients will be evaluated as to attitudes before and after this kind of practice.

Dental schools participating in this project are: The Ohio State University, Case Western Reserve University, University of Kentucky, University of Louisville, University of Missouri, University of Maryland, University of Alabama, Temple University, University of North Carolina, College of the Pacific, and Loma Linda University.

The Ohio State University Project: Dr. Jack Parrish, Dr. Gerry Gaston
Co-Directors, TEAM Program
College of Dentistry
305 West 12th Avenue
Columbus, Ohio 43210

+ University of Kentucky will initiate this fall a dynamic dental assistant's career mobility program from high school to a Master's degree with proficiency tests for entry into dental school. The director is Dr. Bohannan.